

CYBERWORLDS

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“Real-Time Individualized Virtual Humans”

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Full-day Tutorial



Summary

This tutorial will present the latest techniques to model fast individualized animatable virtual humans for Real-Time applications. As a human is composed of a head and a body, we will analyze how these two parts can be modeled and globally animated as in real-life. More precisely, we will show how we can automatically generate individualized RT bodies from scanned data or from interactive measurements, create automatic skeleton for any body size, animate them automatically, control the motion in RT and retarget the motion according to a motion sequences database. Facial animation will be also addressed from motion facial capture and voice to the simulation of interactive realistic talking virtual humans, including personality models and complete body gestures. We will describe how we can model crowds in real-time using dynamic meshes, static meshes and impostors. Techniques to introduce variety in crowds including individual animation, individualized path-planning, accessories will be explained.

Several case-studies will be shown in cultural heritage, Emergency situations, and models for fashion industry. Examples of interaction with virtual humans will be presented. An analysis of remained open research topics will be presented.

The course objective is to offer any student, researcher or real-time application developer the state of the art in modeling and animating individualized virtual humans. The presentation will be theoretical and applications based with case studies. Several animations will be shown.

